

REMARKS

Claims 1 – 36 are pending and rejected.

The applicants' attorney amends claims 1, 15, 22 – 30 and 31 and cancels claim 21. Claims 1, 30 and 31 are amended to address the examiner's rejection under 35 U.S.C. §102(b). Claim 15 is amended not to overcome the examiner's rejection under 35 U.S.C. §102(b), but to more clearly recite an aspect of the applicants' invention. The amendment to claim 15 does not narrow the claim. Claim 30 is amended to convert it into an independent claim by including the limitations of claim 21 from which it depended. The amendment to claim 30 does not narrow the claim. Claims 22 – 29 are amended not to overcome the examiner's rejection, but to change their dependency from claim 21 (now canceled) to claim 30. The applicants' attorney respectfully disagrees with the examiner's rejection of claims 15 – 20 and 30, and asserts that claims 1 – 20 and 22 – 36, as amended, are in condition for allowance for the reasons discussed below.

Rejection of Claims 1 – 14 under 35 U.S.C. §102(b)

The applicants' attorney respectfully asserts that claim 1, as amended, is allowable over German Patent 576 895 issued to Meffert (Meffert), because Meffert fails to disclose a throwing wheel that includes an enclosed channel.

The applicant's claim 1, as amended, recites a device for fragmenting particles of material, the device comprises a throwing wheel that includes an enclosed channel.

For example, as shown in FIGS. 2A, 2B, and 3, and discussed in paragraphs 30 – 38 of the specification, a device 20 for fragmenting particles of material includes a throwing wheel 22 to accelerate particles of material toward an impact speed, an impact rotor 24 to fragment the particles after they leave the throwing wheel 22, and a motor 28 to rotate the throwing wheel 22 and impact rotor 24. The throwing wheel 22 includes a channel 44 that is enclosed to direct the particle toward an exit 46 of the throwing wheel 22. In operation, a particle of material enters the channel 44 through an entrance (not numbered) in the hub 42. The particle then accelerates as it travels through the

channel 44 toward the exit 46. The particle then leaves the throwing wheel 22 through the exit 46 traveling on a desired trajectory and at a desired speed. As the particle accelerates through the channel 44, the enclosed channel 44 prevents the particle from leaving the throwing wheel 22 before the particle reaches the exit 46. Thus, the enclosed channel 44 ensures that the particle leaves the throwing wheel at a desired trajectory and speed.

In contrast, Meffert fails to disclose a throwing wheel that includes an enclosed channel. Meffert discloses a grinding device (not numbered but shown in FIG. 1 (Abb. 1)). The device includes disk *a* (FIGS. 1 – 3 (Abb. 1 – 3)) that rotates to throw particles, an impact ring *b* (FIGS. 1 – 3) that also rotates and fragments particles thrown from the disk *a*, and a funnel (FIGS. 1 and 2 not lettered) to feed particles to the disk *a*. Please note that the letter *a* in FIG. 2 has been drawn on the funnel, suggesting that the funnel is labeled '*a*'. This suggestion, however, is not consistent with FIGS. 1 and 3 that have the letter '*a*' drawn on the disk that rotates to throw particles. The disk '*a*' includes vanes (not lettered but shown in FIGS. 1 – 3) that extend up away from the top surface of the disk '*a*' and hit particles that contact the disk '*a*'. The vanes do not form an enclosed channel in the disk '*a*'. In operation, particles are fed into the funnel. The particles then drop through the exit of the funnel onto disk '*a*' (see FIG. 2). As the disk '*a*' rotates, one or more of the vanes sweeps across the path of the dropping particles to hit the particles. The particles then travel in many directions, one of which may be toward a rib '*c*' (FIGS. 2 and 3) of the impact ring '*b*'. When the particles collide with one or more ribs '*c*', they fragment. Because the vanes do not form an enclosed channel in the disk '*a*', the particles can leave the disk '*a*' traveling in many different directions. For example, the particle may hit other particles after being hit by the vane and travel up over the impact ring '*b*'. Because the vanes do not form an enclosed channel in the disk '*a*', Meffert's disk '*a*', unlike the applicants' claimed device 20, does not include an enclosed channel.

Claims 2 – 14 are patentable by virtue of their dependencies on claim 1, as amended.

Rejection of Claims 15 – 20 under 35 U.S.C. §102(b)

Claim 15 is patentable over Meffert for reasons similar to those recited above in support of claim 1 over Meffert.

Claims 16 – 20 are patentable by virtue of their dependencies on claim 15.

Rejection of claims 22 – 30 under 35 U.S.C. §103(a)

The applicants' attorney respectfully disagrees with the examiner's rejection of claim 30 in view of Meffert and German Patent 1 149 229 issued to Sistig (Sistig) because each fails to disclose an impact rotor that includes an impact tooth having an impact surface removably mounted to the tooth.

To establish a *prima facie* case of obviousness, three basic elements are required. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. And third, the references when combined must teach or suggest all the claim limitations. MPEP; 8th edition; §2143.

The applicants' claim 30 recites an impact rotor that includes a plurality of impact teeth, each including an impact surface removably mounted to its respective tooth.

For example, as shown in FIGS. 5 and 7B and discussed in paragraphs 39 – 42 and 46 of the specification, an impact rotor 24 (FIG. 5) and 94 (FIG. 7B) includes impact teeth 84 (FIG. 5) and 96 (FIG. 7B). The impact rotors 24 and 94 also include an impact plate 86 (FIG. 5) and 102 (FIG. 7B) that may be removably mounted to a respective one of the impact teeth 84 and 96. Each impact plate 86 and 102 includes an impact surface 26 (FIG. 5) and 110 (FIG. 7B) that collides with particles to fragment them. Because the impact plates 86 and 102 may be removably mounted to a respective impact tooth 84 and 96, the impact surface 26 and 110 of each impact plate 86 and 102 are also removably mounted to a respective impact tooth 84 and 96. With an impact

surface 26 and 110 that is removably mounted to a respective impact tooth 84 and 96, one may use the impact rotor 24 and 94 to fragment many different types of material and can easily repair the impact rotor when the impact surfaces are damaged.

In contrast, Sistig fails to disclose an impact rotor that includes an impact tooth having an impact surface removably mounted to the tooth. Sistig discloses a device (not numbered but shown in FIG. 1 (Abb. 1)) to fragment particles. The device includes a centrifugal disk 2 (FIGS. 1 and 2 (Abb. 1 and 2)) and impact plates 5 (FIGS. 1 and 3) mounted to a drum 6 (FIGS. 1 and 3). In operation, particles in hopper 1 (FIG. 1) are dropped onto the centrifugal disk 2 that is rotating. The disk 2 throws some of the particles toward the impact plates 5 that are rotating around the axle of the drum 6. An impact plate 5 then collides with the particle to fragment it. To allow one to adjust the angle of the impact plates 5 when they collide with the particles, the impact plates 5 are mounted to a ring 17 that can be rotated relative to the drum 6 and then locked to the drum 6 with the clamp 18. To retain the impact plates 5 at their different angles to the drum 6, the ring 17 includes a pin 16, and the impact plates 5 include a slot 15 that receives the pin 16. When each impact plate 5 extends perpendicularly from the outside circumference of the drum 6, as shown in FIG. 3, each pin 16 is disposed at one end of its respective slot 15. When each impact plate 5 extends at its maximum angle away from 90°, each pin 16 is disposed at the other end of its respective slot 15. The impact plates 5 are not removably mounted to the drum 6. Therefore, unlike the applicants' claimed impact surfaces 26 and 110, Sistig's impact plates 5 are not removably mounted to the drum 6.

Meffert also fails to disclose an impact rotor that includes an impact tooth having an impact surface removably mounted to the tooth. As previously discussed above, Meffert's device includes an impact ring 'b' having ribs 'c' (FIGS. 2 and 3) that collide with the particles thrown from the disk 'a' to fragment the particles. As shown in FIGS. 2 and 3 the ribs 'c' are formed as an integral part of the impact ring 'b'. Therefore, unlike the applicants' claimed impact surfaces 26 and 110, Meffert's ribs 'c' are not removably mounted to the impact ring 'b'.

Claims 22 – 29 are patentable by virtue of their dependencies on claim 30.

Rejection of Claims 31 – 36 under 35 U.S.C. §102(b)

Claim 31 is patentable over Meffert for reasons similar to those recited above in support of claim 1 over Meffert.

Claims 32 – 36 are patentable by virtue of their dependencies on claim 31.

Conclusion

The applicant's attorney respectfully requests the examiner withdraw his rejection of claims 1 – 20 and 22 – 36 in view of applicants' amendments and remarks and issue an allowance for these claims.

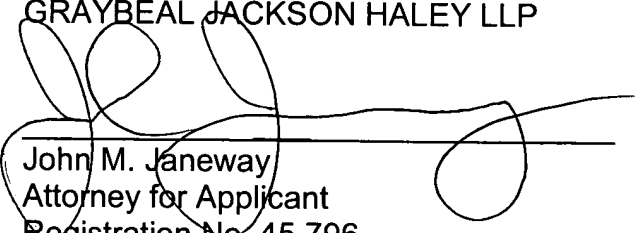
Should any additional fees be required, please charge them to Deposit Account No. 07-1897.

If the examiner believes that a phone interview would be helpful, he is respectfully requested to contact the Applicants' attorney, John Janeway, at (425) 455-5575.

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Respectfully submitted,

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